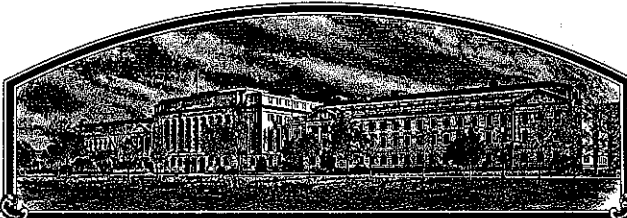


No.

8900090



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Busch Agricultural Resources, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS SEEDS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS PROVIDED BY THE OWNER OF THE RIGHTS. (34 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'B2601'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D. C. this 28th day of February in the year of our Lord one thousand nine hundred and ninety-two.

Attest:

Kenneth H. Egan
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Edward Madigan
Secretary of Agriculture

E. Fay.

APPROVAL EXPIRES 4-30-85

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0065

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) Busch Agricultural Resources, Inc.		2. TEMPORARY DESIGNATION 6B83-2064	3. VARIETY NAME B2601
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 806 N. 2nd Street Berthoud, Colorado 80513		5. PHONE (Include area code) (303)532-3721	FOR OFFICIAL USE ONLY PVPO NUMBER 8900090
6. GENUS AND SPECIES NAME Hordeum vulgare L.	7. FAMILY NAME (Botanical) Gramineae		FILING DATE Feb. 3, 1989 TIME 1:30 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.
8. KIND NAME Spring Barley	9. DATE OF DETERMINATION March 1, 1983 March 1, 1985		AMOUNT FOR FILING \$ 1800.00 DATE Dec. 16, 1988 AMOUNT FOR CERTIFICATE \$ 200.00 DATE Jan. 31, 1992
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware			12. DATE OF INCORPORATION 1/1/81
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Dr. Melvern K. Anderson DUANE D. TEEHEG C. Bruns Busch Agricultural Resources, Inc. or Nickerson American Plant Breeders 806 N. 2nd Street 3515 E. COUNTY RD. 52 Berthoud, CO 80513 P.O. BOX 8306 806 N. 2nd St. Berthoud, CO 80513 (303)532-3721 (303)482-5965 Berthoud, CO 80513			
14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.) b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement. c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of Variety (Request form from Plant Variety Protection Office.) d. <input checked="" type="checkbox"/> Exhibit D, Additional Description of Variety. e. <input checked="" type="checkbox"/> Exhibit E, Statement of the Basis of Applicant's Ownership. f. Quality and Agronomic data			
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) <input checked="" type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input type="checkbox"/> No			
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input checked="" type="checkbox"/> Foundation <input checked="" type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified	
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.? <input type="checkbox"/> Yes (If "Yes," give date) <input checked="" type="checkbox"/> No			
19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input checked="" type="checkbox"/> No			
20. The applicant(s) declare(s) that a viable sample or basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable. The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF APPLICANT Melvern K. Anderson, Busch Agr. Resources Inc.		DATE 11-23-88	
SIGNATURE OF APPLICANT		DATE	

EXHIBIT A.

ORIGIN AND BREEDING HISTORY OF B2601

PEDIGREE: M-31/Six-Rowed High Extract Composite Cross

DATE OF CROSS: The cross was made in the fall greenhouse in 1980; the F1 was grown in Spring 1981 greenhouse.

HISTORY: F2 plants were grown at Hunter, North Dakota in 1981. A single seed from an F2 head selection was advanced by single seed descent in the fall 1981 greenhouse. An F4 head-row was selected in Hunter, North Dakota in 1982. Malting quality prediction tests on remnant F4 seed assisted in the selection of an F5 seed increase plot in Yuma, Arizona for yield testing an F2 derived F6 bulk in our Midwest program in North Dakota in 1983.

B2601 was first grown in the Intermountain yield trials in 1985 at Berthoud, Colorado. This line advanced to second year yield trials in 1986 and advanced yield trials in the Intermountain program in 1987. In 1988, head selections were made in Yuma, Arizona to initiate purification and multiplication. These 60 head-rows were grown and 52 rows were selected to serve as bulk Breeder seed, harvested at Berthoud, Colorado in 1988. Foundation seed is being produced during the summer of 1988 at Gonzales, California. Future head-rows will be grown as necessary to constitute Breeder seed. Registered seed is being produced during the winter of 1988-89 in Arizona.

ADDENDUM TO EXHIBIT A

Breeder seed and production fields of B2601 have been uniform and stable. Under certain conditions B2601 tends to cross pollinate more than typical barleys. Greater isolation of seed production fields and the nesting of breeder seed and head rows within those fields should be practiced to prevent the possibility of cross pollination. Future head rows will be grown as necessary to produce breeder seed.

8900090

EXHIBIT B.

NOVELTY STATEMENT

B2601 is most similar to the six-rowed spring barley variety 'B1603'. However it can be distinguished by the following morphological characteristics:

-B2601 has a semismooth lemma awn. B1603 has a rough lemma awn.

-B2601 has short hairs on the rachilla. B1603 has long rachilla hairs.

-B2601's glume hair is confined to a band. B1603's glume hairs completely cover the glume.

-B2601 has a very erect growth habit and head carriage at maturity. B1603 has a seminodding head carriage at maturity.

'B2601'

FORM GR-470-5
(11-1-72)UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED. OMB NO. 40-R3712

EXHIBIT C
(Barley)OBJECTIVE DESCRIPTION OF VARIETY
BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Busch Agricultural Resources, Inc.

ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code)

806 N. 2nd Street

Berthoud, Colorado 80513

FOR OFFICIAL USE ONLY

PVPO NUMBER

8900090

VARIETY NAME OR TEMPORARY
DESIGNATION

B2601

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (i.e. or) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

 1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE
3 = ERECT

2. MATURITY (50% Flowering):

 1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier) No. of days Earlier than } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 No. of days Later than } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8 = Morex

3. PLANT HEIGHT (From soil level to top of head):

 1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest) Cm. Shorter than } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 Cm. Taller than } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8 = Morex

4. STEM:

 Exertion (Flag to spike at maturity): 1 = 0 - 3 cm. 2 = 3 - 10 cm. Anthocyanin: 1 = ABSENT 2 = PRESENT
3 = 10 - 15 cm. NO. OF NODES (Originating from node above ground) Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN Shape of Neck: 1 = STRAIGHT 2 = SNAKY
4 = MODIFIED CLOSED OR OPEN 3 = OTHER (Specify)

5. LEAF:

 Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT Position of flag leaf (at boot stage): 1 = DROOPING
2 = UPRIGHT Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY MM. WIDTH (First leaf below flag leaf) CM. LENGTH (First leaf below flag leaf) Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

6. HEAD:

 Type: 1 = TWO-ROWED 2 = SIX-ROWED Density: 1 = LAX 2 = ERECT (Not dense)
3 = ERECT (Dense) 4 = middense Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY
4 = OTHER (Specify) 3 = WAXY Lateral Kernels Overlap: 1 = NONE 2 = AT TIP Rachis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED
3 = 1/4 - 1/2 OF HEAD

7. GLUME:

 Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA Hairs: 1 = NONE 2 = SHORT 3 = LONG
3 = MORE THAN 1/2 OF LEMMA Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES
3 = MORE THAN EQUAL TO LENGTH OF GLUMES Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

5

FORM GR-470-5 (Reverse)

8. LEMMA:

- ☒ 5 Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS
 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)
 5 = LONG (longer than spike) 6 = HOODED
- ☒ 2 Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH
- ☒ 3 Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS ☒ 1 Hair: 1 = ABSENT 2 = PRESENT
- ☒ 1-2 Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE ☒ 1 Rachilla Hairs: 1 = SHORT 2 = LONG
 3 = TRANSVERSE CREASE

9. STIGMA:

- ☐ Hairs: 1 = FEW 2 = MANY

10. SEED:

- ☒ 2 Type: 1 = NAKED 2 = COVERED ☒ 1 Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT
- ☒ 2 Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.)
 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)
- ☒ 2-3 Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED
- ☒ 1 Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE
- ☐ ☐ PERCENT ABORTIVE ☐ ☐ GMS. PER 1000 SEEDS

11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) (3 = Moderately Susceptible, 4 = Moderately Resistant.)

- ☒ 0 SEPTORIA ☒ 4 NET BLOTCH ☒ 2 SPOT BLOTCH ☒ 1 POWDERY MILDEW
- ☒ 1 LOOSE SMUT ☒ 0 BACTERIAL BLIGHT ☒ 0 COVERED SMUT ☒ 0 FALSE LOOSE SMUT
- ☒ 2 STEM RUST ☒ 4 LEAF RUST ☒ 0 SCAB ☒ 0 SCALD
- ☒ 0 AY ☒ 0 BSMV ☒ 0 BYDV ☐ OTHER (Specify)

12. INSECT: (0 = Not tested, 1 = Susceptible 2 = Resistant)

- ☒ 0 GREEN BUG ☒ 0 ENGLISH GRAIN APHID ☒ 0 CHINCH BUG ☐ ARMYWORM
- ☒ 0 GRASS HOPPERS ☒ 0 CERIAL LEAF BETTLE ☒ 0 OTHER (Specify)
- HESSIAN FLY RACES } ☒ GP ☐ A ☐ B ☐ C
☐ D ☐ E ☐ F ☐ G

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☒ 0 DDT ☐ OTHER (Specify)

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering		Seed size	
Leaf size		Coleoptile elongation	
Leaf color		Seedling pigmentation	
Leaf carriage			

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

- Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
- Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
- Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

EXHIBIT D.

ADDITIONAL BOTANICAL DESCRIPTION OF B2601

B2601 is a six-rowed spring barley bred and developed by Busch Agricultural Resources, Inc. Berthoud, Colorado. It has a mid-season maturity and excellent malting quality.

Juvenile growth habit is erect. Plant color at boot is green with an erect flag leaf. Head shape is strap and middense with a straight neck and v-shaped collar. Rachilla and glume hair is short and rachis edge is covered. Glume hair covering is confined to a band and the glume awns are more than equal to glume length. Lemma awns are long and semismooth. Lemma teeth are numerous and hairs are absent. Seed is covered, short to midlong, slightly to semiwrinkled and aleurone is colorless.

B2601 is an Intermountain six-rowed variety well adapted to Montana, Idaho, Colorado, Washington and Oregon.

8900090

EXHIBIT E.

STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

Busch Agricultural Resources, Inc. is applicant for protection in this case being:

- a. The incorporated business registered in Delaware for and within which regular employees have bred B2601.
- b. The proprietary owner and intending commercial seller of B2601.

EXHIBIT F.

B2601 Intermountain Malting Summary	Page 1
B2601 Intermountain Agronomic Summary	Page 2
B2601 Yearly Agronomic Summary	Page 3

EXHIBIT F.

INTERMOUNTAIN MALTING SUMMARY

BERTHOUD 1986-87

VARIETY	PLUMP			PROTEIN			EXT	DP	DP/ PROT	AA
	6 1/2	5 1/2	THRU	MALT	WORT	W/T				
B1602	93.4	3.9	2.7	10.7	4.0	37.5	80.0	134	12.5	44.0
B1603	93.6	4.5	1.9	11.7	4.2	35.9	79.6	151	12.9	47.2
B2601	94.1	4.4	1.5	10.9	4.6	41.9	80.5	125	11.5	38.7
MOREX	94.6	3.6	1.8	12.0	4.4	36.7	80.3	143	12.0	42.1

IDAHO FALLS 1986-87

VARIETY	PLUMP			PROTEIN			EXT	DP	DP/ PROT	AA
	6 1/2	5 1/2	THRU	MALT	WORT	W/T				
B1602	91.8	3.8	4.4	11.7	4.1	35.0	80.7	131	11.1	34.4
B1603	93.8	4.0	2.2	11.2	4.5	40.1	81.8	137	12.2	39.4
B2601	86.1	9.2	4.7	11.6	4.4	37.7	79.5	142	12.3	39.5
MOREX	90.5	6.6	2.9	11.9	4.5	37.8	80.1	140	11.8	37.0

BERTHOUD & IDAHO FALLS OVERALL SUMMARY

VARIETY	PLUMP			PROTEIN			EXT	DP	DP/ PROT	AA
	6 1/2	5 1/2	THRU	MALT	WORT	W/T				
B1602	92.9	3.9	3.2	11.0	4.0	36.7	80.2	133	12.0	40.8
B1603	93.7	4.3	2.0	11.5	4.3	37.3	80.3	146	12.6	44.6
B2601	90.9	6.3	2.8	11.2	4.5	40.2	80.1	132	11.8	39.0
MOREX	92.3	5.3	2.4	11.9	4.5	37.3	80.2	141	11.9	39.2

JFB//11/23/88

W/T=Wort Protein/Total Protein
 Ext.=Extract
 D.P.=Diastatic power
 D.P./Prot.=Diastatic power/Protein
 A.A.=Alpha amylase

EXHIBIT F.

INTERMOUNTAIN AGRONOMIC PERFORMANCE OF B2601

COLORADO

<u>VARIETY</u>	<u>YIELD</u>		<u>HEAD</u> <u>DAYS</u>	<u>HT</u> <u>CM</u>	<u>LODGE</u> <u>1-9</u>
	<u>Bu/A</u>	<u>%MOREX</u>			
B2601	117.9	122	152	75	2.0
MOREX	96.7	100	147	97	3.2
STEPTOE	131.2	136	146	86	2.4

3 Station years

IDAHO

<u>VARIETY</u>	<u>YIELD</u>		<u>HEAD</u> <u>DAYS</u>	<u>HT</u> <u>CM</u>	<u>LODGE</u> <u>1-9</u>
	<u>Bu/A</u>	<u>%MOREX</u>			
B2601	124.7	141	173	--	1.2
MOREX	88.7	100	170	--	3.2
STEPTOE	118.5	136	170	--	2.8

2 Station years

OVERALL

<u>VARIETY</u>	<u>YIELD</u>		<u>HEAD</u> <u>DAYS</u>	<u>HT</u> <u>CM</u>	<u>LODGE</u> <u>1-9</u>
	<u>Bu/A</u>	<u>%MOREX</u>			
B2601	120.6	129	160	75	1.7
MOREX	93.5	100	156	97	3.2
STEPTOE	126.1	135	156	86	2.6

LODGE 1=EXCELLENT STRAW
9=POOR STRAW

EXHIBIT F.

AGRONOMIC PERFORMANCE OF B2601

Overall Summary (7 Station Years)

<u>VARIETY</u>	<u>YIELD (%MOREX)</u>					<u>HEAD DAYS</u>	<u>MAT. RATE</u>	<u>HT CM</u>	<u>LDG 1-9</u>
	<u>(1) 85</u>	<u>(2) 86</u>	<u>(2) 87</u>	<u>(2) 88</u>	<u>(7) X</u>				
B2601	138	117	132	112	123	160	3.0	69	1.3
MOREX	100 (59)	100 (86)	100 (94)	100 (98)	100 (88)	156	2.5	87	2.4

Hd=Heading Date
 Mat=Plant Maturity
 Ldg=Plant Lodging